

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

- 1.-4. (cancelled)
5. (currently amended) The host cell of claim ~~[[1]]~~ 12 wherein the promoter is *glnAp2*.
- 6.-11. (cancelled)
12. (currently amended) ~~The host cell of claim 17 wherein the isoprenoid is An~~
E. coli host cell comprising a first expression cassette comprising a promoter and a nucleic acid sequence encoding an enzyme that catalyzes biosynthesis of lycopene, β -carotene, astaxanthin, or one of their precursors; the nucleic acid sequence being operably linked to the promoter which is bound by ntrC such that the promoter is regulated by acetyl phosphate in the absence of nitrogen starvation, wherein the cell is lacking a functional glnL histidine protein kinase gene.
13. (currently amended) ~~The host cell of claim 17 wherein the first enzyme is An~~
E. coli host cell comprising a first expression cassette comprising a promoter and a nucleic acid sequence encoding isopentenyl diphosphate isomerase, geranylgeranyl diphosphate synthase, ~~[[or]]~~ 1-deoxyxylulose 5-phosphate synthase, a phytoene synthase, or a phytoene desaturase the nucleic acid sequence being operably linked to the promoter which is bound by ntrC such that the promoter is regulated by acetyl phosphate in the absence of nitrogen starvation, wherein the cell is lacking a functional glnL histidine protein kinase gene.
- 14.-20. (cancelled)

21. (currently amended) The host cell of claim ~~[[17]]~~ 13 wherein the host cell further ~~contains~~ comprises a nucleic acid sequence encoding a phosphoenolpyruvate synthase.

22. (withdrawn) A method of producing ~~a-isoprenoid~~ lycopene, β -carotene, astaxanthin, or one of their precursors in a host cell, the method comprising:

providing the host cell of claim ~~17~~ 12, wherein the ~~first~~ enzyme is a biosynthetic enzyme that catalyzes synthesis of the ~~isoprenoid~~ lycopene, β -carotene, astaxanthin, or one of their precursors;

overexpressing a phosphoenolpyruvate synthase; and

expressing the biosynthetic enzymes that ~~catalyzes~~ catalyze the synthesis of the ~~isoprenoid~~ lycopene, β -carotene, astaxanthin, or one of their precursors.

23. (withdrawn) A method of producing a lycopene in a bacterial host cell, the method comprising:

providing the host cell of claim ~~[[17]]~~ 13; and

expressing a 1-deoxy-D-xylulose 5-phosphate synthase, a geranylgeranyl diphosphate synthase, a phytoene synthase, and a phytoene desaturase, at least one of which is ~~the enzyme~~ expressed from the first expression cassette.

24. (currently amended) A kit comprising (i) a nucleic acid sequence containing a promoter bound by ntrC such that the promoter is regulated by acetyl phosphate in a defined bacterial host cell, and a coding sequence that encodes ~~an enzyme for isoprenoid biosynthesis; isopentenyl diphosphate isomerase, geranylgeranyl diphosphate synthase, 1-deoxyxylulose 5-phosphate synthase, a phytoene synthase, a phytoene desaturase, or a lycopene cyclase~~ and (ii) the defined host cell which is an *E. coli* host cell genetically modified by deletion or inactivating mutation of the glnL gene.

25.-37. (cancelled)

38. (withdrawn) The host cell of claim 1 wherein the heterologous metabolite is a polyhydroxyalkanoate.

39. (cancelled)

40. (currently amended) An *E. coli* bacterial host cell comprising:

(i) a genetic alteration inactivating the *glnL* gene; and

(ii) a nucleic acid sequence comprising a coding sequence encoding a ~~biosynthetic enzyme that catalyzes production of an isoprenoid, polyketide, or polyhydroxyalkanoate~~ isopentenyl diphosphate isomerase, geranylgeranyl diphosphate synthase, 1-deoxyxylulose 5-phosphate synthase, phosphoenolpyruvate synthase, 3-ketoacyl reductase, poly-3-hydroxyalkanoate polymerase, a phytoene synthase, a phytoene saturase, lycopene cyclase, farnesyl diphosphate synthase and an operably linked promoter that is bound by *ntrC* and regulated by acetyl phosphate.

41.-44. (cancelled)

45. (previously presented) The kit of claim 24 wherein the promoter is the *glnAp2* promoter.

46. (cancelled)

47. (withdrawn) The method of claim 46 23 in which the culturing comprises nitrogen rich conditions.

48. (withdrawn) The method of claim 46 47 in which the culturing comprises growth to late logarithmic growth.

49. (withdrawn) The method of claim 46 in which the culturing comprises growth to stationary phase.

50. (withdrawn) The method of claim ~~48~~ 23 in ~~which the metabolite is lycopene, the promoter is *glnAp2*, and~~ at least 5 mg L⁻¹ of lycopene are produced.

51. (cancelled)

52. (withdrawn) The host cell of claim 12 wherein the isoprenoid is lycopene.

53. (withdrawn) The host cell of claim 12 wherein the isoprenoid is β -carotene.

54. (withdrawn) The host cell of claim 12 wherein the isoprenoid is astaxanthin.

55. (previously presented) The host cell of claim 13 wherein the enzyme is isopentenyl diphosphate isomerase.

56. (withdrawn) The host cell of claim 13 wherein the enzyme is geranylgeranyl diphosphate synthase.

57. (withdrawn) The host cell of claim 13 wherein the enzyme is 1-deoxyxylulose 5-phosphate synthase.

58. (withdrawn) The method of claim 46 wherein the metabolite is a polyketide.

59. (withdrawn) The method of claim 46 wherein the metabolite is a polyhydroxyalkanoate.

60. (withdrawn) The method of claim 46 in which the promoter is *glnAp2*.

61. (withdrawn) The method of claim 47 in which the promoter is *glnAp2*.

62. (withdrawn) The method of claim 48 in which the promoter is *glnAp2*.

63. (withdrawn) The method of claim 49 in which the promoter is *glnAp2*.

64. (withdrawn) The method of claim 49 in which the metabolite is a carotenoid.

65. (withdrawn) The method of claim 49 in which the metabolite is lycopene.
66. (withdrawn) The method of claim 65 in which the culturing comprises nitrogen rich conditions.
67. (withdrawn) The method of claim 65 in which the culturing comprises growth to late logarithmic growth.
68. (withdrawn) The method of claim 65 in which the culturing comprises growth to stationary phase.
69. (withdrawn) The method of claim 58 in which the culturing comprises nitrogen rich conditions.
70. (withdrawn) The method of claim 58 in which the culturing comprises growth to late logarithmic growth.
71. (withdrawn) The method of claim 58 in which the culturing comprises growth to stationary phase.
72. (withdrawn) The method of claim 59 in which the culturing comprises nitrogen rich conditions.
73. (withdrawn) The method of claim 59 in which the culturing comprises growth to late logarithmic growth.
74. (withdrawn) The method of claim 59 in which the culturing comprises growth to stationary phase.
75. (New) The host cell of claim 13 wherein the promoter is *glnAp2*.